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Acceptance or decline of requests to review manuscripts

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Abstract

Background: Peer review in the scientific publication is widely used as a method to identify valuable knowledge. Editors have the task of selecting appropriate reviewers. We assessed the reasons given by potential reviewers for declining a request to review and the factors associated with acceptance, taking into account the difference in the sex of the reviewer.

Methods: Descriptive study of the review requests from a public health journal (*Gaceta Sanitaria*) with an enforced gender policy. The dependent variables were requests, response to requests, reasons potential reviewers gave for declining requests and time to review. We carried out a descriptive analysis of these indicators and applied logistic regression to analyze factors (professional and research/review experience) associated with having done at least one review in 2014-2015. Results were stratified by sex.

Results: Journal editors sent 1,775 requests to 773 potential reviewers; 52.3% of whom reviewed at least one manuscript. Of the 396 declined requests (22.3%), the most common reasons were lack of time and of experience (88.1%). No differences were observed by sex. In the multivariate analysis, having reviewed for the journal in previous years showed the strongest association with acceptance.

Conclusions: Specific analyses of data on requests reviewers may be useful for improving the acceptance rates to review. This study did not show gender differences in several indicators of the reviewing process.

Keywords: editorial policy, gender, peer review, scientific publications

Introduction

Many scientists agree that, despite its limitations, peer review is the best tool to identify valuable knowledge. One of these limitations is the time needed for the process, mainly between initial submission and the first editorial decision following formal peer review (Nguyen et al. 2015). Editors have the important task of selecting appropriate reviewers who should be qualified scientists who respond to editors' requests and submit their reviews in a timely fashion.

Electronic submission introduced a new concept of editorial management. Electronic editorial systems include reviewer databases which collect details of reviewers' expertise and may record a reviewing history. This record provides useful information for editors to use to select a reviewer for a specific manuscript. Furthermore, some of these systems make it possible to score reviewers according to the quality of the reviews performed. Some editorial systems also register information allowing editors to develop and monitor indicators related to the peer-review process.

Several studies have examined potential gender differences in different aspects of the peer-review process (Gilbert, Williams, and Lundberg 1994)(Davó, Vives, and Alvarez-Dardet 2003)(Wing et al. 2010)(Breuning et al. 2015) (Borja 2015)(Fox, Burns, and Meyer 2016)(Nobarany, Booth, and Hsieh 2016)(Lerback and Hanson 2017) (Helmer et al. 2017), more recently in line with the guidelines on sex and gender equity in research (SAGER) (Heidari et al. 2016) developed by the European Association of Science Editors (www.ease.org.uk). These guidelines address inequalities that arise due to the different power that men and women have in society, as well as to the double burden of work that women may have (domestic and occupational work), which may affect their involvement in the structures of research (as for example leading scientific journals or positions at research centers) (Ceci and Williams 2011).

A study that analyzed articles published before January 1st, 2016, covering 142 Frontiers journals from science, health, engineering, and humanities and social sciences, shows overall, the number of women reviewers varies from 15% (Surgery) to 50% (Public Health), and of women editors from 5% (Robotics AI) to 35% (Aging Neuroscience) and globally, it was observed a slow trend towards gender parity across time (Helmer et al. 2017). Editors tend to invite reviewers that are like

themselves (Fox, Burns, and Meyer 2016) (Fox, Burns, and Meyer 2016), so improved awareness by journal editors of potential gender and geographic inequalities in the reviewer selection process, coupled with self-evaluation of each specific journal's internal processes for reviewer selection, is likely necessary to achieve greater equality in reviewer usage (Fox, Burns, and Meyer 2016).

Some studies have considered the differences between women and men regarding the answer to a review request, and the results have been heterogeneous. While one study showed no differences (Breuning et al. 2015), in a second study women declined their requests at a slightly higher rate than men (Lerback and Hanson 2017). Furthermore, another study found that the probability that an invitee responded and agreed to a review invitation was at most slightly (approximately 2%) higher for women than men (Fox, Burns, and Meyer 2016). This last study analyzed how some characteristics of the editor (i.e. sex, seniority and geographic location) affect how invitees respond to review requests. However, there have been no studies that have analyzed separately for women and men, professional characteristics of the reviewers associated with accepting a review. To increase women scientists' engagement in manuscript reviewing may help in the advancement of women in science. Furthermore promoting diversity not only speeds representation and fairness but may lead to higher quality science (Campbell et al. 2013).

Some studies in biomedical journals have analyzed the reviewers' perspective on the review process, including opinions about barriers and facilitators. The most common reasons for reviewing were professional responsibility (Snell and Spencer 2005), the opportunity for learning (Snell and Spencer 2005) (Tite and Schroter 2007), and keeping up to date with the field (Kearney et al. 2008). The most commonly cited aspect for declining requests for review was lack of time (Kearney et al. 2008) or conflict with another responsibility (Tite and Schroter 2007). Qualitative research (Lipworth et al. 2011) points out that the main motivations for participation in journal peer review were scientific quality control and/or dissemination of knowledge. If these two goals conflict, most reviewers and editors prioritize quality control over dissemination. Other non-'scientific' motivations, such as commitment and reciprocity, have also been found to be important.

Gaceta Sanitaria is a scientific journal owned by the *Sociedad Española de Salud Pública y Administración Sanitaria (SESPAS)*, a professional public health and health policy society based in Spain. In 2015 Gaceta Sanitaria assumed a policy of promoting gender equality in the scientific publication (Borrell et al. 2015) as a result of previous steps in this regard in recent years. Public health in Spain is no exception to the global patterns of gender bias in science, with a predominance of men in decision-making positions (García-Calvente et al. 2015). The gender policy of Gaceta Sanitaria includes actions in order to promote gender equality in the editorial process, one of which is to ensure that there are no gender inequalities in the management of manuscripts. The Editorial Board prompted this study to know whether journal's efforts to eliminate gender bias might work.

The objectives of this study were to assess the reasons giving by potential reviewers for declining a request to review a manuscript and the influence of different factors on acceptance. An additional question of concern was whether men and women respond differently.

Method

Design, study population and information sources

We carried out a descriptive study of review requests in 2014-2015 from Gaceta Sanitaria to people (excluding editors) who were invited to review and sent their reply before December 31st, 2015.

Gaceta Sanitaria is published by Elsevier and uses its Editorial System (which was the main source of information for this study). Additionally, we used Pubmed (the advanced search tool by author) in determining years since first publication and number of publications in the last five years of people invited to review.

Gaceta Sanitaria has a database of reviewers that includes their contact details, history as a reviewer and topics of expertise. The topics can be filled in by the reviewers themselves, although the editors can also add new topics or include some when this field is empty. In this latter case, the number of topics is usually small. Most topics are related to epidemiology of infectious diseases, epidemiology of chronic diseases, health economy and health services, environmental protection, health promotion, disease prevention, methodology, social epidemiology or pharmacoepidemiology.

The number of reviewers is modified periodically because editors can enlist new reviewers and remove inactive ones. At the time of the study, the database included 1,072 potential reviewers, close to evenly divided between men (52%) and women (48%).

A journal editor selects two or three referees to evaluate each manuscript. Reviewers are selected based on availability, how well their expertise matches the topic of the submitted paper, and the reviewing history. All reviewers are blinded to the papers' authors and their institution. Reviewers have a choice to sign the review but usually they remain anonymous. Revised manuscripts are only rarely sent to reviewers.

Requests to review consist of standardized e-mails sent through the Editorial System. The deadline for responding to an invitation is 7 days. In the event that reviewers respond to the invitation, they may accept or decline the request. When they decline, they have the option to provide a reason (free text) and/or an alternative reviewer. The given time to review is 21 days (14 days for brief manuscripts).

Definition of variables

The basic indicators of the external review process were: requests, the response to requests (percentages of acceptance, decline, and no response), review submitted on time or delayed and the number of reviews per person.

We also analyzed the reasons why potential reviewers declined the request. Based on the most frequent responses, these reasons were coded a posteriori as lack of time, lack of knowledge (or experience) in the topic, lack of time and lack of knowledge (or experience), overload of review, conflict of interest, and other.

To analyze the factors associated with accepting a review (at least once during the study period) we considered: sex (manually assigned from the reviewer's first name) and some professional variables such as workplace country (Spain or other), institution (public health-government, university, public research organizations and others -hospitals, primary care, companies, etc.), years since the first publication as author (as an index of research experience), and finally, the number of

articles he or she had published in the last 5 years (overall and specifically in Gaceta Sanitaria). We also considered the number of areas of expertise (from the list offered by the editorial management system, and categorized as under 5, 5 to 9, 10 or more) and other variables related to previous review experience for the journal, as the year of the last review from 2011 to 2013 (no prior review, 2011, 2012, 2013) and requests without conducting review (in the years 2011 to 2013, categorized in 0, 1, 2 or more). Belonging to Gaceta Sanitaria's Editorial Committee (previous) or to Advisory Board (previous or present) was also considered (yes or no).

Statistical analysis

We performed a descriptive analysis of the indicators of external review and the reasons why potential reviewers declined, using Z test and χ^2 test for comparisons of two or more proportions, respectively. For the analysis of the factors associated with having done at least one review for Gaceta Sanitaria in the study period, we used bivariate and multivariate logistic regression to estimate crude odds ratios (cOR) and adjusted odds ratios (aOR) with their 95% confidence intervals (CI). The dependent variable was having made at least one review in 2014-2015 vs no review in this period. All factors that a priori or according to the literature revised could affect the dependent variable were taken into account. Those variables with a p-value <0.05 in the bivariate model were incorporated into the saturate multivariate model and were eliminated one by one following a 'backward' strategy. All analyses were stratified by sex. The analysis was performed with SPSS, version 19.

Results

In 2014 and 2015, 1,775 requests to review were submitted to 773 potential reviewers. The percentage of people who reviewed at least one manuscript with respect to those invited was 52.3% (51.8% and 52.8% for men and women, respectively). There were no statistical differences by sex in the response to requests, delay in the review and number of reviews per person (Table 1).

Of the 396 declined requests (22.3%), most provided a reason and/or an alternative reviewer (81.8%) (Table 2). Of the 270 (68.2%) requests with a recorded reason for declining, the most common reason was lack of time (57.4%), followed by lack of knowledge or experience in that subject (27.4%) or both (3.3%). Overload of reviews and conflict of interest were the causes for declining 5.9% and 4.8% of requests, respectively. There were no sex differences in the reasons for declining the request to review.

Some of the characteristics of men and women who received requests or did at least one review in 2014-15 were different (Table 3). The most common institutional affiliation for women was public health-government while for men it was the university. Compared to men, women had less time elapsed since their first publication, had published fewer articles, and had not belonged to the Editorial Board.

Regarding factors associated with having completed at least one review among those invited in 2014-15 (Table 4), an association was observed among men with the number of published articles (overall and in *Gaceta Sanitaria*) and the number of items of expertise, but these were not statistically significant in the multivariate analysis. Having reviewed for the journal in previous years was the only associated variable in the multivariate analysis, for both men (aOR 4.93; 95%CI: 2.84-8.57, for those who performed a review in the past year) and women (aOR 3.91; 95%CI: 2.11-7.26). In men, we also observed an association in the multivariate analysis with the number of previous refusals or no response (aOR 2.64, 95%CI: 1.44-4.84 and 2.19, 95%CI: 1.27-3.77, for those who have declined once or none, respectively, compared to those who have declined 2 or more times). In women, other variables associated with acceptance in the multivariate analysis were: the institution, the number of articles published (acceptance was more frequent in those that have 2-5 published articles compared to less or more), have published in *Gaceta Sanitaria* (aOR 2.37, 95%CI: 1.25-4.50 and 2.20, 95%CI: 1.15-4.18 for those who have published one article or 2 or more, respectively), as well as with the largest number of topics of expertise registered in the publisher management system (aOR 1.94, 95%CI: 1.08-3.47 for those with more than 9 topics regarding having less than 5). Neither men nor women showed an association between having done at least one review for *Gaceta Sanitaria* in 2014-2015 and the variables: workplace country, years from the first publication or membership in committees of the journal.

Discussion

Our analysis shows that there was no gender difference in several indicators of the peer-review process in *Gaceta Sanitaria*, such as response to requests, time to review, number of reviewed manuscripts or reasons for decline. Invitees' main reason for declining a review was lack of time or expertise. The main factor associated with having made at least one review in 2014-15 was having performed a review recently, with the strongest association for both men and women. For men, having had fewer declines or no answers to previous requests to review was also another factor associated with having made at least one review in 2014-2015. For women, other factors associated with having made a review were having previously published in the journal, a greater number of areas of expertise registered in the editorial management system, having published 2 to 5 articles compared to less or more papers, or working at the university.

Indicators of external peer-review process by sex

Some studies have shown that women are invited less often by editors than men to a peer review process (Davó, Vives, and Alvarez-Dardet 2003) (Lerback and Hanson 2017) and also that women are underrepresented on the editorial boards of major medical journals (Amrein et al. 2011) as well as in others fields (Fox, Burns, and Meyer 2016) (Topaz and Sen 2016) (Helmer et al. 2017).

Furthermore, it has been described that editors selected more men reviewers and this pattern was slightly more pronounced for men editors (Fox, Burns, and Meyer 2016) (Buckley et al. 2014) (Lerback and Hanson 2017) (Helmer et al. 2017). In *Gaceta Sanitaria* since 2010 there is a parity of men and women in the editorial committee and since 2012 this parity is also present on the advisory board of the journal (Borrell et al. 2015).

Some studies have shown differences in acceptance to review by sex. For example, Fox et al conclude that women were less likely to respond to requests to review and took longer to respond to the invitation, but they were more likely to agree if they responded (Fox, Burns, and Meyer 2016). In a study of peer review in the journals of the American Geophysical Union, women declined requests at a slightly higher rate than men in the same age group (except the oldest cohorts) (Lerback and Hanson 2017).

As was found in another study (Davó, Vives, and Alvarez-Dardet 2003), in the present study there were no statistically significant differences by sex in time to submit the review.

Reasons for declining a request to review by sex

Of those who declined to review the main reason was lack of time, similar to other studies (Tite and Schroter 2007) (Willis 2016). The second reason was that the paper did not fall within their area of expertise. The proportion was higher than in another study (less than 5%) (Willis 2016). In order to improve the adequate selection of reviewers it is important that they provide accurate information about their areas of expertise, and also the editors need to respect reviewers' self-declaration of expertise. The overload of review indicated by some reviewers could relate to reviewing requests from *Gaceta Sanitaria* or other journals. Some reviewers also indicated that they had a conflict of interest. The reviewers are alerted in the invitation e-mail to think about potential conflicts of interest, and as the names of the paper's authors are not included in the invitation e-mail, the reviewers can only identify conflicts by looking at the abstract. Most reviewers who decline requests provided alternative reviewers, which is very useful for editors, especially when there are few reviewers with expertise in some topics.

In the present study, there were no differences by sex in the reasons for declining an invitation. Breuning et al. (2015) found differences by sex, so women were somewhat more likely to state that they were too busy, had too many requests or were on professional or personal leave, while in men it was more frequent that they did not have sufficient expertise, had taken on administrative duties, served as journal editors or had previously read or reviewed the paper.

Factors associated to perform a review by sex

For men and women, having performed a review in the previous years was the factor that showed the strongest association with accepting a new review. This may be partly explained by the fact that editors consider the revision history and send more requests to people who have reviewed in previous years. However, a high percentage of the requests were sent to people who had not done a revision in previous three years, mainly new reviewers that have increased the reviewers' database of the journal. In men, an association was also found with fewer previous declines or failure to answer. These two factors can be related to a favourable interest in a regular collaboration with the journal. Mrowinski et al (Mrowinski et al. 2016) found that for a Serbian journal of chemistry, reviewers known personally by the editor were much likely to answer and accept the request than other reviewers. The authors explained this result as a consequence of the interest of known reviewers in maintaining a reputation and avoid disappointing these editors. In the absence of such personal relationship, reviewers may employ different criteria as for example the journal's reputation.

For women, other factors found were having previously published in the journal and the number of areas of expertise registered in the editorial management system, showing that prior knowledge of the journal is favourable to act as a reviewer.

We do not have seniority data in the database reviewer and we have used as an approach the number of published articles and the years since the first publication. In the present study, for both requested and agreed reviewers, more men than women were senior scientists and it was observed in women a higher rate of acceptance in whom had published 2-5 articles with respect to those that had published less or more. A recent study has shown that in the younger cohorts the proportion of women

reviewers invited was higher than in the older groups, and also that decline rates for both sexes increased with age (Lerback and Hanson 2017).

Limitations and strengths

This study has some limitations. We have not assessed the reviewing process as a whole, only the initial steps of inviting reviewers and the subsequent submission of reviews in a timely manner. We have not assessed the quality of reviewers or of their reviews. Additionally, some variables as seniority have been measured indirectly and it could be a lack of accuracy in this measures as sometimes is not easy to identify the publications corresponding to an author because of name ambiguity problems (Haak et al. 2012).

As some reviewers were invited more than once, some observations of the requests may not meet the independence criteria of the statistical tests. However, the requests to these reviewers refer to different articles, at different moments, and their response regarding them in relation to the acceptance or rejection, or cause of the rejection, can vary so that the assumption of independence could be tolerable and the results are not expected to change crucially.

The study is limited to one journal with one specific profile and for a period of two years, and the results might not be generalizable to other journals. However, a positive aspect of the study is the use of objective data and that similar data are available in other editorial management systems so a similar analysis could be replied for other journals.

Disclosing reviewer's identity could affect potential reviewers' willingness to assess a paper, particularly in early career scientists, but no direct effect by gender has been reported (Helmer et al. 2017). Furthermore, Gaceta Sanitaria allows reviewers to sign their reports on a voluntary basis.

Conclusions and recommendations

This study did not show gender differences in several aspects of the peer-reviewing process of a Spanish public health journal. The journal's efforts to promote gender equality (reflected in parity in the journal's committees -editorial committee and advisory board- and in the reviewers), may have contributed to these favourable results. Also, the editorial management system automatically provides

to editors keyword-based reviewer suggestions, so they have the possibility to do a more informed choice.

It is important for editorial committees to have indicators that allow monitoring of journal's policies. For monitoring of gender policies is essential to record the sex of people involved in the editorial process. In our study it was easy to obtain it from the first name as Spanish names provide significant clues about sex, but it could be more difficult for international journals, although several methodologies have been defined for inferring gender based on first names (Larivière et al. 2013) (Fox, Burns, and Meyer 2016) (Topaz and Sen 2016). Sex could be introduced as an additional variable in the editorial management system.

Specific analyses of data on requests to reviewers may be useful for improving acceptance rates and consequently the peer review process. For example, the selection of reviewers who have conducted a review recently or have previously published in the journal can increase the probability of accepting the invitation. Finally, although lack of time was the main reason given for declining requests to review, authors should not forget the importance of acting as reviewers themselves (Ruano-Raviña and Alvarez Dardet 2014). Without reviewers, research studies cannot be published. Thus, even if authors are short of time, they should feel an obligation to return the service that others have provided them by agreeing to review manuscripts submitted by others.

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Table 1. Basic indicators of external peer-review, by sex. Gaceta Sanitaria, 2014-2015.

	Total N (%)	Men N (%)	Women N (%)	p-value
Requests	1775 (100)	857 (48.3)	918 (51.7)	0.15
Requested people	773 (100)	392 (50.7)	381 (49.3)	0.72
Agreed reviewers	404 (100)	203 (50.2)	201 (49.8)	0.96
% people who reviewed with respect to those invited	52.3	51.8	52.8	0.84
Response to requests				0.11
Acceptance	747 (42.1)	376 (43.9)	371 (40.4)	
Decline	396 (22.3)	197 (23.0)	199 (21.7)	
No response	632 (35.6)	284 (33.1)	348 (37.9)	
TOTAL	1775 (100)	857 (100)	918 (100)	
Reviews ^a				0.83
On time	588 (80.8)	296 (80.0)	292 (81.6)	
Delayed	140 (19.2)	74 (20.0)	66 (18.4)	
TOTAL	728 (100)	370 (100)	358 (100)	
Reviews per person				0.15
1	237 (58.7)	120 (59.1)	117 (58.2)	
2	99 (24.5)	43 (21.2)	56 (27.9)	
3 or more	68 (16.8)	40 (19.7)	28 (13.9)	

^aThe reason for the difference between acceptances and reviews is that there were 19 requests accepted before December 31st, 2015 but the reviews have not been submitted before that date.
The p-value corresponds to the comparison between men and women

Table 2. Reason and/or alternative reviewer in declined requests and type of reason, by sex. Gaceta Sanitaria, 2014-2015.

	Total N (%)	Men N (%)	Women N (%)	p-value
Declined requests				0.70
No reason nor alternative reviewer	72 (18.2)	39 (19.8)	33 (16.6)	
Alternative reviewer	54 (13.6)	28 (14.2)	26 (13.1)	
Reason	143 (36.1)	66 (33.5)	77 (38.7)	
Reason and alternative reviewer	127 (32.1)	64 (32.5)	63 (31.7)	
TOTAL	396 (100)	197 (100)	199 (100)	
Reason				0.72
Lack of time	155 (57.4)	69 (53.1)	86 (61.4)	
Lack of knowledge (or experience)	74 (27.4)	41 (31.5)	33 (23.6)	
Lack of time and lack of knowledge (or experience)	9 (3.3)	5 (3.8)	4 (2.9)	
Overload of review	16 (5.9)	8 (6.2)	8 (5.7)	
Conflict of interest	13 (4.8)	6 (4.6)	7 (5.0)	
Other	3 (1.1)	1 (0.8)	2 (1.4)	
TOTAL	270 (100)	130 (100)	140 (100)	

The p-value corresponds to the comparison between men and women

Table 3. Description of the personal, professional and publishing characteristics of requested people or who have made at least one review, by sex. Gaceta Sanitaria (GS), 2014-2015.

	Requested people			Agreed reviewers		
	Men N (%)	Women N (%)	p-value	Men N (%)	Women N (%)	p-value
Country						
Spain	367 (93.6)	349 (91.6)		192 (94.6)	183 (91.0)	
Other	25 (6.4)	32 (8.4)		11 (5.4)	18 (9.0)	
Institution						
Public Health, government	102 (26.0)	139 (36.5)	***	54 (26.6)	77 (38.3)	**
University	149 (38.0)	110 (28.9)		83 (40.9)	68 (33.8)	
Public research organization	65 (16.6)	81 (21.3)		33 (16.3)	40 (19.9)	
Others	74 (18.9)	49 (12.9)		32 (15.8)	16 (8.0)	
Unknown	2 (0.5)	2 (0.5)		1 (0.5)		
Years since the first publication (quintiles)						
<7	54 (13.8)	89 (23.4)	***	24 (11.8)	48 (23.9)	***
7-10	68 (17.3)	84 (22.0)		40 (19.7)	46 (22.9)	
11-15	81 (20.7)	87 (22.8)		39 (19.2)	46 (22.9)	
16-22	73 (18.6)	72 (18.9)		40 (19.7)	42 (20.9)	
>22	116 (29.6)	49 (12.9)		60 (29.6)	19 (9.5)	
Number of published articles (2011 to 2015) (quintiles)						
0-1	66 (16.8)	76 (19.9)	*	26 (12.8)	32 (15.9)	*
2-5	70 (17.9)	86 (22.6)		37 (18.2)	55 (27.4)	
6-13	82 (20.9)	87 (22.8)		44 (21.7)	46 (22.9)	
14-27	78 (19.9)	75 (19.7)		50 (24.6)	42 (20.9)	
>27	96 (24.5)	57 (15.0)		46 (22.7)	26 (12.9)	
Number of published articles in GS (2011-2015)						
0	239 (61.0)	229 (60.1)		112 (55.2)	101 (50.2)	
1	67 (17.1)	67 (17.6)		36 (17.7)	43 (21.4)	
2 or more	86 (21.9)	85 (22.3)		55 (27.1)	57 (28.4)	
Number of areas of expertise^a						
<5	203 (51.8)	191 (50.1)		89 (43.8)	81 (40.3)	
5-9	83 (21.2)	90 (23.6)		45 (22.2)	52 (25.9)	
>9	106 (27.0)	100 (26.2)		69 (34.0)	68 (33.8)	
Year of the last review for GS (2011 to 2013)						
No	175 (44.6)	166 (43.6)		63 (31.0)	63 (31.3)	
2011	57 (14.5)	45 (11.8)		33 (16.3)	18 (9.0)	
2012	50 (12.8)	59 (15.5)		28 (13.8)	36 (17.9)	
2013	110 (28.1)	111 (29.1)		79 (38.9)	84 (41.8)	
Number of declines or no response to review in GS (2011 to 2013)						
2 or more	99 (25.3)	105 (27.6)		41 (20.2)	61 (30.3)	**
1	100 (25.5)	80 (21.0)		65 (32.0)	38 (18.9)	
0	193 (49.2)	196 (51.4)		97 (47.8)	102 (50.7)	

Editorial Committee (previous) or Advisory Board (previous or present) membership of GS

No	360 (91.8)	370 (97.1)	**	182 (89.7)	194 (96.5)	**
Yes	32 (8.2)	11 (2.9)		21 (10.3)	7 (3.5)	

*p-value <0.05, ** p-value <0.01; *** p-value<0.001. The p-value corresponds to the comparison between men and women

^a Areas of expertise selected from those included in the editorial management system

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Table 4. Factors associated to have made at least one review in 2014-2015, among people requested by sex. Bivariate and multivariate analysis. Gaceta Sanitaria (GS) requests.

	Men			Women		
	Reviewer %	cOR (IC 95%)	aOR (IC 95%)	Reviewer %	cOR (IC 95%)	aOR (IC 95%)
Country						
Spain	52.3	1		52.4	1	
Other	44.0	0.72 (0.32-1.62)		56.3	1.17 (0.56-2.42)	
Institution						
Public Health, government	52.9	1		55.4	1	1
University	55.7	1.12 (0.67-1.85)		61.8	1.30 (0.78-2.17)	1.78 (1.00-3.15)*
Public research organization	50.8	0.92 (0.49-1.71)		49.4	0.79 (0.45-1.36)	0.70 (0.37-1.33)
Others	43.2	0.68 (0.37-1.24)		32.7	0.39 (0.20-0.77)**	0.58 (0.27-1.25)
Years since the first publication (quintiles)						
<7	44.4	1		53.9	1	
7-10	58.8	1.79 (0.87-3.68)		54.8	1.03 (0.57-1.88)	
11-15	48.1	1.16 (0.58-2.32)		52.9	0.96 (0.53-1.73)	
16-22	54.8	1.52 (0.75-3.07)		58.3	1.20 (0.64-2.24)	
>22	51.7	1.34 (0.70-2.56)		38.8	0.54 (0.27-1.10)	
Number of published articles (2011 to 2015) (quintiles)						
0-1	39.4	1		42.1	1	1
2-5	52.9	1.72 (0.87-3.41)		64.0	2.44 (1.29-4.60)**	2.17 (1.07-4.39)*
6-13	53.7	1.78 (0.92-3.44)		52.9	1.54 (0.83-2.87)	1.03 (0.50-2.16)
14-27	64.1	2.75 (1.40-5.40)**		56.0	1.75 (0.92-3.33)	1.10 (0.51-2.40)
>27	47.9	1.42 (0.75-2.67)		45.6	1.15 (0.58-2.30)	0.81 (0.35-1.87)
Number of published articles in GS (2011 to 2015)						
0	46.9	1		44.1	1	1
1	53.7	1.32 (0.76-2.27)		64.2	2.27 (1.29-3.99)**	2.37 (1.25-4.50)**
2 or more	64.0	2.01 (1.21-3.34)**		67.1	2.58 (1.53-4.35)***	2.20 (1.15-4.18)*
Number of areas of expertise^a						
<5	43.8	1		42.4	1	1
5-9	54.2	1.52 (0.91-2.53)		57.8	1.86 (1.12-3.09)*	1.51 (0.85-2.67)
>9	65.1	2.39 (1.47-3.88)***		68.0	2.89 (1.73-4.80)***	1.94 (1.08-3.47)*
Year of the last review for GS (2011 to 2013)						
No	36.0	1	1	38.0	1	1
2011	57.9	2.44 (1.33-4.50)**	2.82 (1.49-5.31)**	40.0	1.09 (0.56-2.14)	0.82 (0.39-1.70)
2012	56.0	2.26 (1.20-4.28)*	2.72 (1.38-5.34)**	61.0	2.56 (1.39-4.71)**	2.44 (1.24-4.82)*
2013	71.8	4.53 (2.70-7.60)***	4.93 (2.84-8.57)***	75.7	5.09 (2.98-8.69)***	3.91 (2.11-7.26)***
Number of declines or no response to review in GS (2011 to 2013)						
2 or more	41.4	1	1	58.1	1	
1	65.0	2.63 (1.48-4.66)**	2.64 (1.44-4.84)**	47.5	0.65 (0.36-1.17)	
0	50.3	1.43 (0.88-2.33)	2.19 (1.27-3.77)**	52.0	0.78 (0.49-1.26)	
Editorial Committee (previous) or Advisory Board (current or previous) membership of GS						
No	50.6	1		52.4	1	
Yes	65.6	1.87 (0.87-3.99)		63.6	1.59 (0.46-5.52)	

% of reviewer, in each category, who have made at least one review in 2014-15 with respect to those invited; cOR: crude odds ratio; aOR: adjusted odds ratio (variables that were significant in bivariate analysis, p-value < 0.05, were entered into a multivariate logistic model). *p-value <0.05, ** p-value <0.01; *** p-value <0.001

^a Areas of expertise selected from those included in the editorial management system